



NATIONAL ENERGY TECHNOLOGY LABORATORY



Biomass and Alternative Methane Fuels, BAMF, Assistance

Biomass

Wood residues

Mill wastes

Agricultural wastes

Urban wastes

Energy crops

Alternative Methane Fuels

Landfill gas

Wastewater Treatment Plant Digester gas

Coalbed methane

National Energy Technology Laboratory Biomass and Alternative Methane Fuels Team

Engineers

Foresters

Scientists

Economists

Technicians

GIS professionals

The BAMF Team can:

Assess at the agency, region, or facility level the potential for using BAMF resources using the BAMF GIS database:

- All federal, state, and privately owned forests
- All major wood mills
- All major landfills
- All major wastewater treatment plants
- All coal fields

The BAMF Team can:

Recommend the best Resource-to-Energy conversion system

Estimate the capital and operating costs for a conversion system

Estimate the energy cost savings from using BAMF resources

Coordinate with other FEMP labs to evaluate all other renewable energy possibilities

The BAMF Team can:

- **Assist in indentifying the best contracting vehicle**
- **Identify all applicable federal and state financial incentives**
- **Recommend the best Measurement & Verification methods**
- **Assist in the procurement of BAMF resources**

Conversion Technologies

- **Combustion**
 - Most commonly used technology
 - Thermal efficiency ~30 – 35%
 - CHP systems ~70 – 75%
- **Gasification**
 - Thermal efficiency ~ 30 – 35%
 - IGCC systems ~ 70 – 75%

Gasification

- **Converts biomass to syngas: H₂ and CO**
- **Syngas is a fuel**
- **H₂ can be separated out**
- **Gasification systems can also be designed to produce methane**
- **Syngas can also be converted to synfuel for transportation use**

Gasification

- Biomass gasification has a much cleaner environmental profile than combustion of biomass
- CO₂ produced is suitable for carbon sequestration

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